DATES & DATA

September 27

Astronomy seminar: The JSC Astronomy Seminar Club will meet at noon September 27 and October 4 in Bldg. 31, Rm. 248A. For more information contact Al Jackson at x35037.

★**Scuba club meets:** The Lunarfins meet at 7:30 p.m. September 27 and October 18. For more information contact Mike Manering at x32618.

Spaceteam Toastmasters meet: The Spaceteam Toastmasters meet at 11:30 a.m. September 27 and October 4 at United Space Alliance, 600 Gemini. For more information contact Patricia Blackwell at (281) 280-6863.

September 28

Communicators meet: The Clear Lake Communicators, a Toastmasters International club, meet September 28 and October 5 at 11:30 at Wyle Laboratories, 1100 Hercules, Suite 305. For more information contact Allen Prescott at (281) 282-3281 or Richard Lehman at (281) 280-6557.

Radio club meets: The JSC Amateur Radio Club meets at 6:30 p.m. at Piccadilly, 2465 Bay Area Blvd. For more information contact Larry Dietrich at x39198.

September 29

Golf tournament deadline: Registration ends for the XA and Friends Golf Tournament. Registration is $40 for the four-person scramble which will be held at Beacon Lakes Golf Course on November 10. For more information contact Greg Lestourgeon at x33444.

October 2

NSS meets: The Clear Lake area chapter of the National Space Society meets at 6:30 p.m. at the Parker Williams Branch of the Harris Co. Library at 10851 Scarsdale Blvd. For details contact Murray Clark at (281) 367-2227.

October 3

Quality Society meets: The Bay Area Section of the American Society for Quality will meet at 6 p.m. Tuesday, October 3, at the Ramada King's Inn on NASA Road 1. No reservations are required. For more information, contact Ann Dorris at x38620.

October 5

Warning System Test: The site-wide Employee Warning System performs its monthly audio test at noon. For more information contact Bob Gaffney at x34249.

October 6

Chess Club meets: The Space City Chess Club meets from 5 p.m. - 9 p.m. at the Clear Lake Park Recreation Bldg. All skill levels are welcome. For more information call James Mulberry at x39287 or James Termini at x32639.

October 10

Aero Club meets: The Bay Area Aero Club meets at 7 p.m. at the Houston Gulf Airport clubhouse at 2750 FM 1266 in League City. For more information contact Larry Hendrickson at x32050.

NPMA meets: The National Property Management Association meets at 11:30 a.m.at the Gilruth Center. For more information contact Ray Whitaker at (281) 212-6030.

October 11

IAAP meets: The Clear Lake/NASA chapter of the International Association of Administrative Professionals meets at 5:30 p.m. at Bay Oaks Country Club. Cost is $16. For details and reservations, call Tami Barbour at (281) 488-0055, x238.

MAES meets: The Society of Mexican-American Engineers and Scientists meets at 11:30 a.m. xx in Bldg. 16, Rm. 111. For more information contact Laurie Carrilo at 281-244-5203.

October 12

Airplane club meets: The Radio Control Airplane Club meets at 7 p.m. at the Clear Lake Park building. For more information contact Bill Langdoc at x35970.

October 13

Astronomers meet: The JSC Astronomical Society meets at 7:30 p.m. at the Center for Advanced Space Studies, 3600 Bay Area Blvd. For more information contact Chuck Shaw at x35416.

October 19

Directors meet: The Space Family Education board of directors meets at 11:30 a.m. in Bldg. 45, Rm. 712D. For more information contact Lynn Buquo at x34716.

OUT & ABOUT★

Shown here, Mike Manering of the Lunarfins Scuba Club dives in the blue waters of Cozumel. The Lunarfins sponsor many dive trips throughout the year. They meet 7:30 p.m. at Watergate Yacht Club October 18. For more information contact Mike Manering at x32618.

TICKET WINDOW

The following discount tickets are available at the Exchange Stores

General Cinema Theaters				$5.50
Sony Loew's Theaters				$5.50
AMC Theaters				$5.00
Fiesta Texas	adult	$20.50.	child (under 48 inches)	$17.25
Astroworld	1 day	$21.00	2 day	$31.00
WaterWorld				$12.00
Moody Gardens (2 events) (does not include Aquarium Pyramid)				$10.75
Moody Gardens (Aquarium only)				$9.25
Sea World	adult	$29.00	child (3-11 years)	$19.25
Schlitterbahn	adult	$21.50	child (3-11 years)	$18.00
Space Center Houston	adult	$11.00	child (age 4-11)	$7.25
(JSC civil service employees free.)				
Space Center Houston annual pass				$18.75
Splash Town	1 day	$13.00	Season Pass	$37.50
Postage Stamps (book of 20)				$6.60

Exchange Store hours

Monday-Friday
Bldg. 3 7 a.m.-4 p.m.
Bldg. 11 9 a.m.-3 p.m.

- All tickets are nonrefundable.
- Metro tokens and value cards are available.

Super September Sale

- 10% off all merchandise, candy and cards Sept 1-15! Stop by the stores for details.

For additional information, please call x35350.

Please bring your driver's license to pay by personal check.

NASA BRIEFS

X-RAY OBSERVATORY MARKS FIRST ANNIVERSARY

NASA's Chandra X-ray Observatory celebrated its initial year in orbit with an impressive list of firsts. Through Chandra's unique X-ray vision, scientists have seen for the first time the full impact of a blast wave from an exploding star, a flare from a brown dwarf, and a small galaxy being cannibalized by a larger one.

Chandra is the third in NASA's family of great observatories, complementing the Hubble Space Telescope and the Compton Gamma Ray Observatory. "Our goal is to identify never-before-seen phenomena, whether they're new or millions of years old. All this leads to a better understanding of our universe, " said Martin Weisskopf, chief project scientist for the Chandra program at NASA's Marshall Space Flight Center. "Indeed, Chandra has changed the way we look at the universe."

Chandra was launched in July 1999. After only two months in space, the observatory revealed a brilliant ring around the heart of the Crab Pulsar in the Crab Nebula, the remains of a stellar explosion providing clues about how the nebula is energized by a pulsing neutron, or collapsed, star.

Chandra also detected a faint X-ray source in the Milky Way galaxy, which may be the long-sought X-ray emission from the known massive black hole at the galaxy's center. A black hole is a region of space with so much concentrated mass there is no way for a nearby object, even light, to escape its gravitational pull.

The observatory captured as well an image that revealed gas funneling into a massive black hole in the heart of a galaxy, two million light years from our own.

PACIFIC DECADAL OSCILLATION PACKS A ONE-TWO PUNCH

Astronomers using NASA's Hubble Space Telescope have taken attendance in a class of brown dwarfs and found indications that these odd and elusive objects also tend to be loners.

The Hubble census — the most complete to date — provides new and compelling evidence that stars and planets form in different ways.

"Because the brown dwarfs bridge the gap between stars and planets, their properties reveal new and unique insights into how stars and planets form," said Joan Najita of the National Optical Astronomy Observatory in Tucson, AZ. Her study with fellow NOAO researcher Glenn Tiede and John Carr of the Naval Research Laboratory, Washington, DC, will appear in the October issue of the Astrophysical Journal.

Considered an astronomical oddity only a few years ago, brown dwarfs are intriguing objects that, unlike stars, are too low in mass to burn hydrogen, but are more massive than planets. At 15 to 80 times the mass of Jupiter, the light that they emit is so faint it's hard to tell how many of them are scattered throughout the galaxy, and how they're formed.

The Hubble census finds that, like stars, there are more low-mass brown dwarfs than high-mass ones, and this trend continues down to low, nearly "planetary" masses. "In this respect, the isolated, or free-floating, brown dwarfs found by Hubble appear to represent the low-mass counterparts of the more massive stars," added Najita. "This suggests that stars and free-floating brown dwarfs form in the same way."

However, the Hubble finding also offers the strongest evidence so far that free-floating brown dwarfs are far different than the recently discovered planets that orbit nearby stars. Najita's team found brown dwarfs more often alone than in orbit around other stars. "This suggests that the extra-solar planets and, by extension, the planets in our own solar system, formed very differently from how the Sun and other stars formed," Najita noted.

SPACE CENTER Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Johnson Space Center, Houston, Texas, and is published by the Public Affairs Office for all space center employees. The Roundup office is in Bldg. 2, Rm. 181. The mail code is AP3. The main telephone number is x38648, and the fax is x32000. Electronic mail messages may be directed to:

Editor .....William Jeffs ..... .william.p.jeffs@jsc.nasa.gov
Assistant Editor .....Nicole Cloutier ..... .nicole.cloutier1@jsc.nasa.gov

PRSRT STD
U.S. POSTAGE
PAID
WEBSTER, TX
Permit No. G27